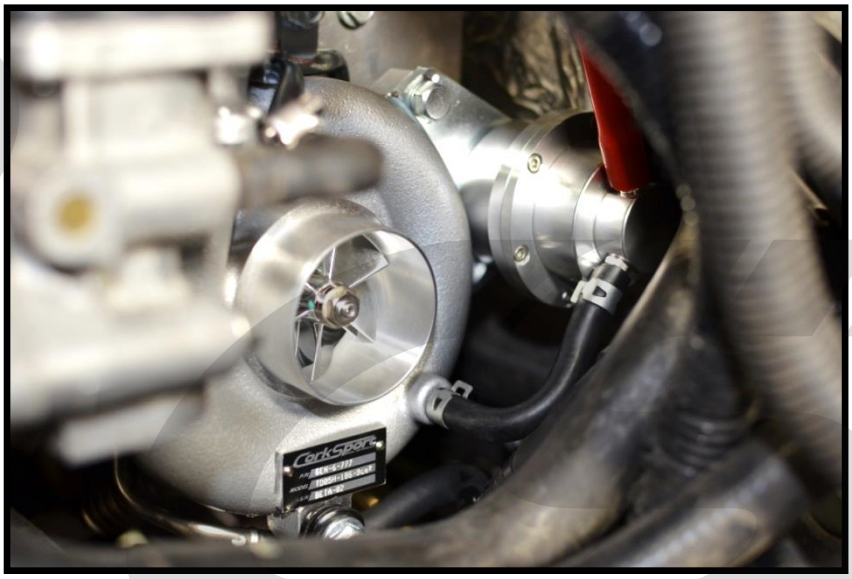
Part # GEN-6-777

CorkSport MZR DISI Performance Drop-In Turbocharger

2007 – 2013 Mazdaspeed 3 & 2006-2007 Mazdaspeed 6

Thank you for purchasing the CorkSport Performance Drop-In Turbocharger for the 2007-2013 MS3 & 2006-2007 MS6. Replace the smoky K04 and get a boost in performance without the hassle of a big turbo build! Please let us know what you think by submitting a review at: https://corksport.com/mazdaspeed-3-direct-fit-turbocharger.html



Pre-Installation Notes:

Make sure your vehicle is completely cooled down prior to starting installation. If you are going to work on your car within an hour or two of having driven it, use a fan to cool off the car.

When using jack stands, make sure the vehicle is on a level surface and the parking brake is working correctly.

A re-tune will be required to safely operate the CorkSport Turbocharger. The wastegate duty cycles and ignition timing maps will need to be modified. We recommend contacting a professional tuner.

These instructions were written with a 2009 Mazdaspeed 3 and are for reference only and the use of a factory service manual is recommended (were applicable). Please read these instructions thoroughly prior to starting installation.

Materials and Time:

General Info.

Part #: GEN-6-777
Time Est: 4 - 6 hours
Wrench Rating: 4/5

Parts List

See cover Page

Tooling List

Flat Head Screwdriver
Phillips Screwdrivers
Large Jaw Pliers
Needle Nose Pliers
Small Vise Grips (x2)
8mm Socket & Wrench
10mm Socket & Wrench
12mm Socket & Wrench
14mm Socket & Wrench
17mm Socket (1/2" Drive)
19mm Socket (1/2" Drive)
21mm Socket (1/2" Drive)
Ratchet Wrench (3/8" & 1/2")
4" Extension (3/8" & 1/2")
12" Extension (3/8" & 1/2")
Oxygen Sensor Socket
1/2" Semi-Wobbler Joint
WD 40 or similar
Torque Wrench
Coolant Drain pan

Additional Items (not included) :

Oil Drain Pipe Gasket, Upper
Mazda P#: L3K914293 (Recommended)
Oil Drain Pipe Gasket, Lower
Mazda P#: L3K914264 (Recommended)
Permatex Anti-Sieze Coating for Turbo Studs/Nuts (Recommended)
Ziploc Bag + Sharpie
Coolant

Part # GEN-6-777

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Part # GEN-6-777

Detailed Instructions

These installation instructions were written using a 2009 Mazdaspeed 3.

We recommend using plastic Ziploc bags and a sharpie to label all bolts and parts throughout the install.

1. OEM Intake & Filter Removal

a) **Remove the top mount intercooler cover** (TMIC) by removing the two 10mm bolts (red circles in Figure 1a).

Figure 1a

Now is a good time to look at your intercooler and see if you have any bent fins or debris lodged in the intercooler fins. Removing debris and straightening the fins will improve the performance of the intercooler.

b) **Loosen the two (2) 10mm hose clamps on the factory rubber intake elbow** (red circle and green circle in Figure 1b).

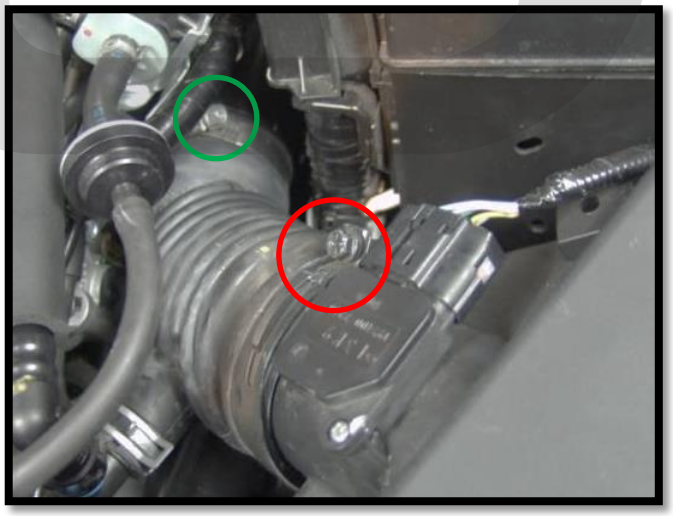

Figure 1b

c) **Unplug the MAF housing sensor** located on the air filter housing (green circle in Figure 1c).

d) **Remove the two 10mm bolts** on the air filter housing bracket and remove the bracket (shown in red circle in Figure 1c).

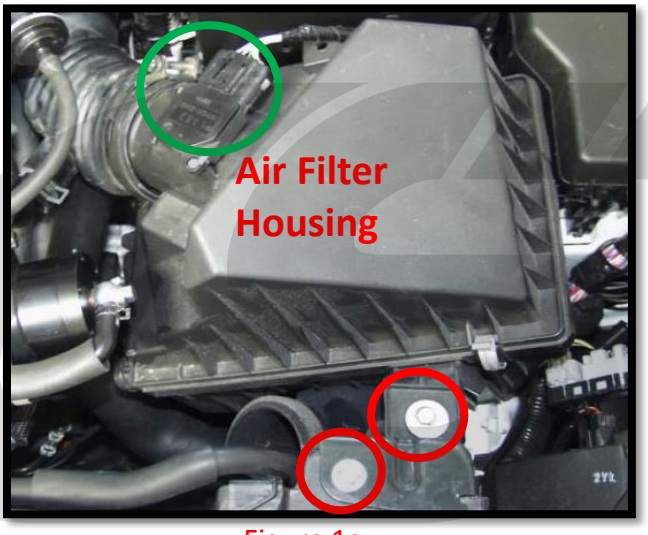

Figure 1c

1. OEM Intake & Filter Removal (continued)

e) **Remove the valve cover breather tube.** Push the hose connector toward the valve cover and press both sides of the colored clip simultaneously. Pull the hose away from the valve cover (Figure 1d).

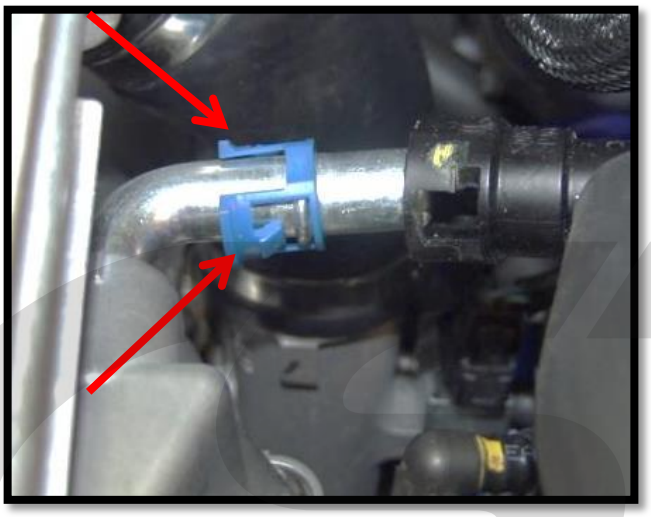

Figure 1d

f) **Pull up on the filter housing** to pop it free from the car and remove it along with the intake elbow and breather tube.

2. Battery Box & ECU Removal

a) **Remove the battery box cover.** The cover is held on with two clips (shown with red arrows in Figure 2a). Pry the clips outward by hand and lift the front of the lid off of the box.

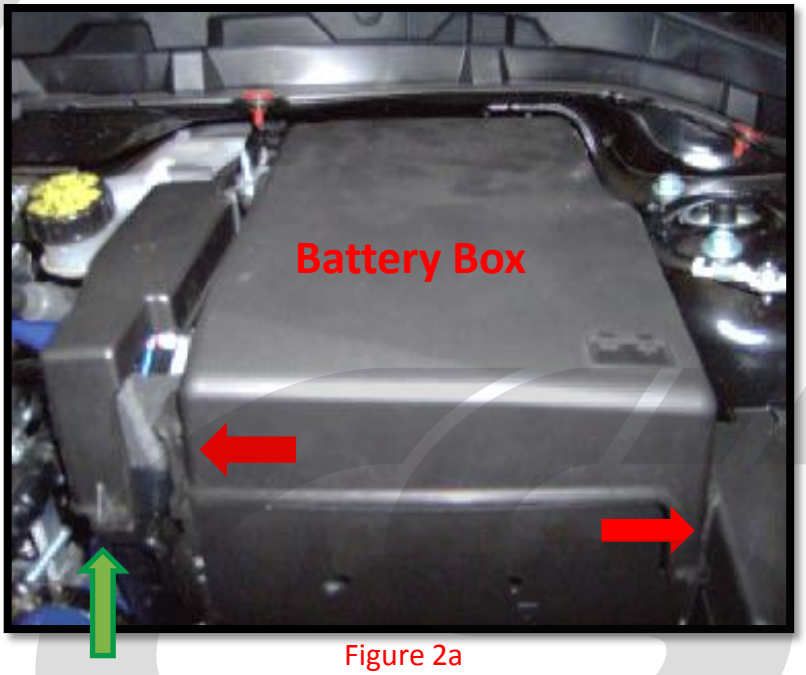

Figure 2a

Detailed Instructions:

2. Battery Box & ECU Removal (continued)

b) Disconnect the battery. Disconnect the battery terminals with a 10mm end wrench. Refer to Figure 2b for negative (-) and positive terminals (+). Disconnect the negative terminal of the battery first, then the positive terminal (Figure 2b).

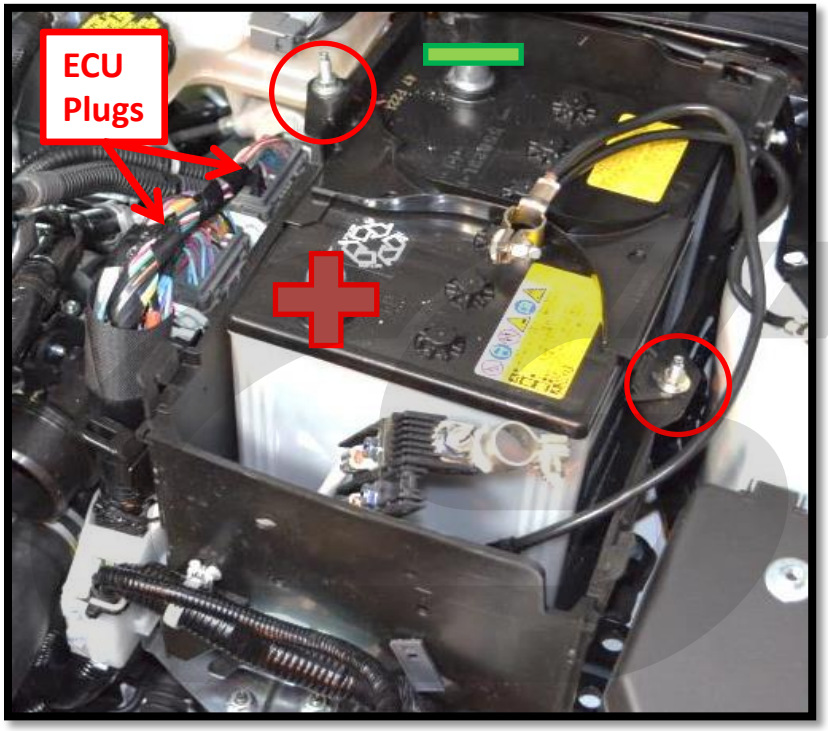

Figure 2b

c) Remove the two 10mm nuts for the battery tie down bracket (shown with red circles in Figure 2b).

d) Remove the battery from the battery box.

e) Remove the front battery box panel. Remove the MAF wiring harness clip (blue circle Figure 2c), and negative battery cable clip (purple circle Figure 2c), from the front battery box panel using needle nose pliers to compress the clips on the inside of the battery box. Then slide the panel upwards and remove it (green arrow in Figure 2c).

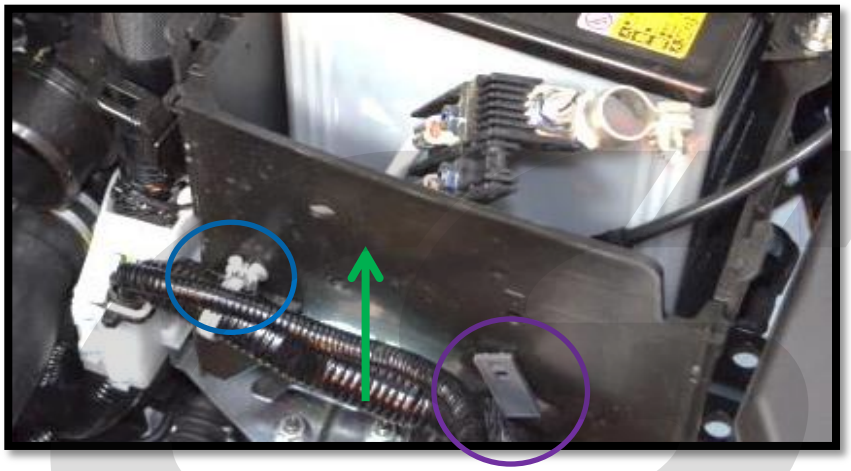

Figure 2c

2. Battery Box & ECU Removal (continued)

f) **Disconnect the ECU plugs** by pushing on the tabs (red arrows in Figure 2d) and pulling the white lock upward simultaneously (green arrows in Figure 2d). Refer to Figure 2b for location of ECU plugs and Figure 2d for close ups.

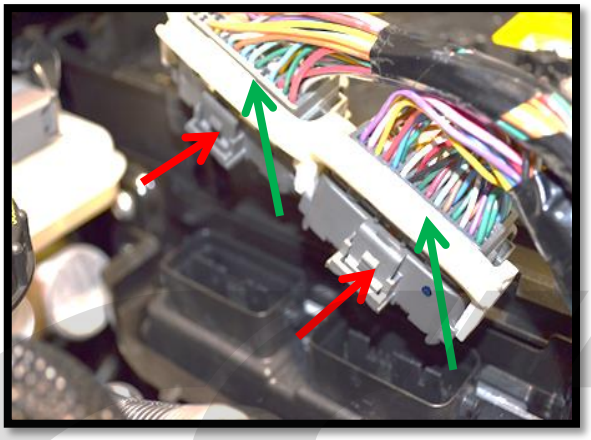

Figure 2d

When done correctly, this process should be effortless.

g) **Remove the battery box**. Remove the three 10mm bolts in the bottom of the box, and remove the battery box and ECU (red circles Figure 2e).

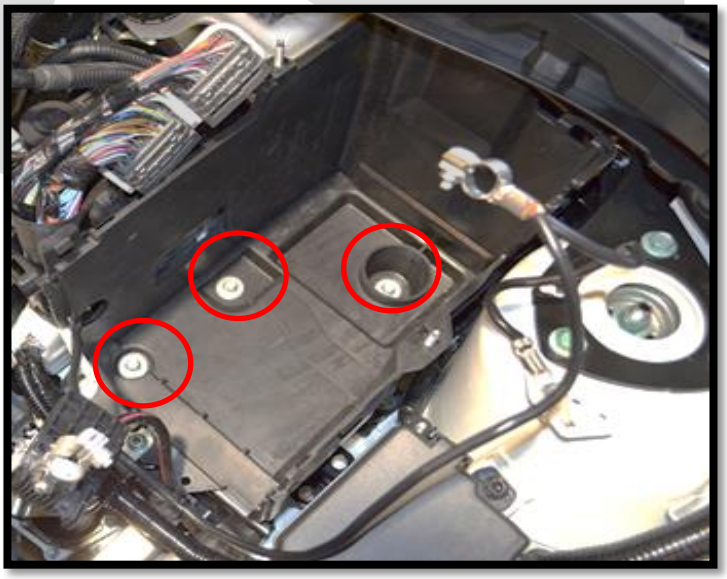

Figure 2e

3. OEM Turbo Inlet Pipe (TIP) Removal

a) **Using pliers, release the hose clamps** (red circles in Figure 3a) **located on the bypass valve hose.** Remove the hose from the car and save if you are re-using it. You can discard the rubber hose and spring clamps if you will be installing the optional CorkSport Silicone BPV Hose.

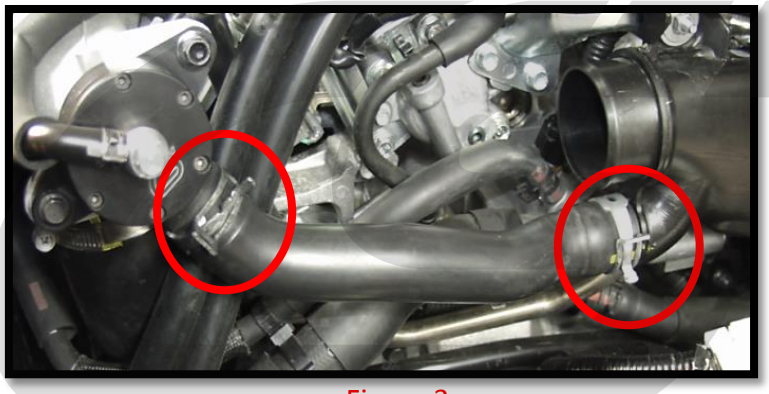

Figure 3a

3. OEM Turbo Inlet Pipe (TIP) Removal (continued)

b) Remove the 10mm nut that holds the stock turbo inlet pipe in place (blue circle in Figure 3b).

c) Remove the two wiring harness clips (red arrows in Figure 3b) located on the stock turbo inlet pipe.

Be very carful to not break the nipple off the boost control solenoid.

d) Using needle nose pliers, remove the hose from solenoid fitting on the stock turbo inlet pipe and the boost control solenoid (see Figure 5d on next page and identified in Figure 3b by blue arrow).

If you are having difficulty getting it loose, try rotating the hose to break the seal of the rubber to the plastic fitting and then pulling straight up. It takes a little force but cleanly comes off.

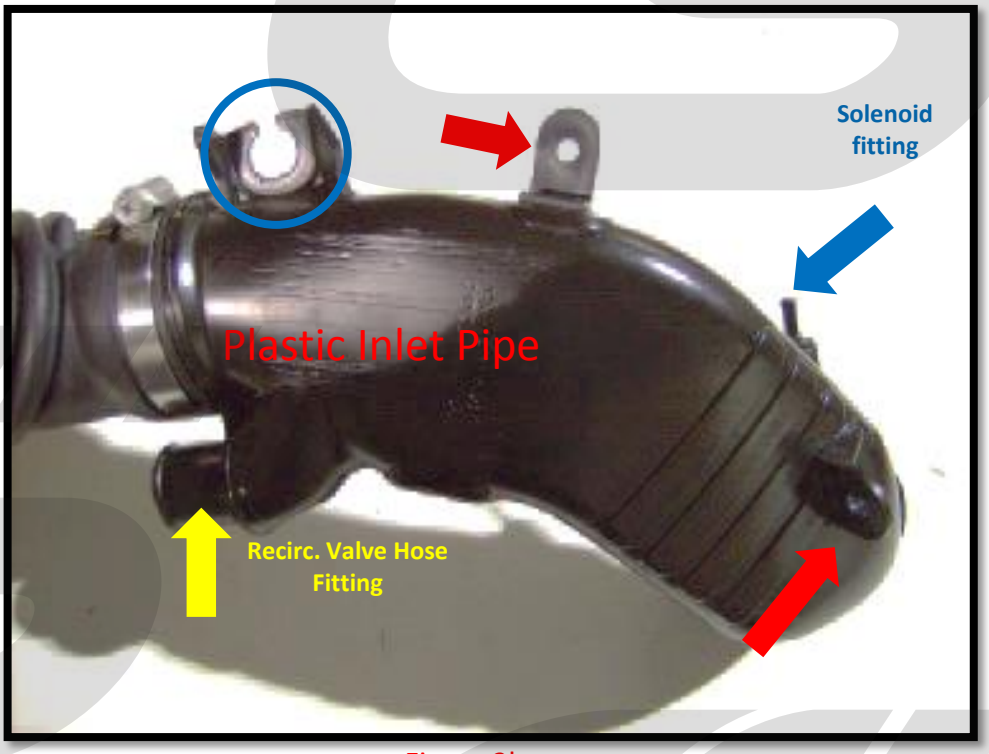

Figure 3b

e) Remove the plastic inlet pipe from the turbocharger. Loosen the 10mm hose clamp at the turbo inlet, pull the stock turbo inlet pipe off of the turbocharger, and remove it from the car.

4. Intercooler Removal

a) **Remove the clamps for the throttle body and turbo boost tubes from the intercooler**. Use a 10mm socket to loosen the clamps (green circles in Figure 4a).

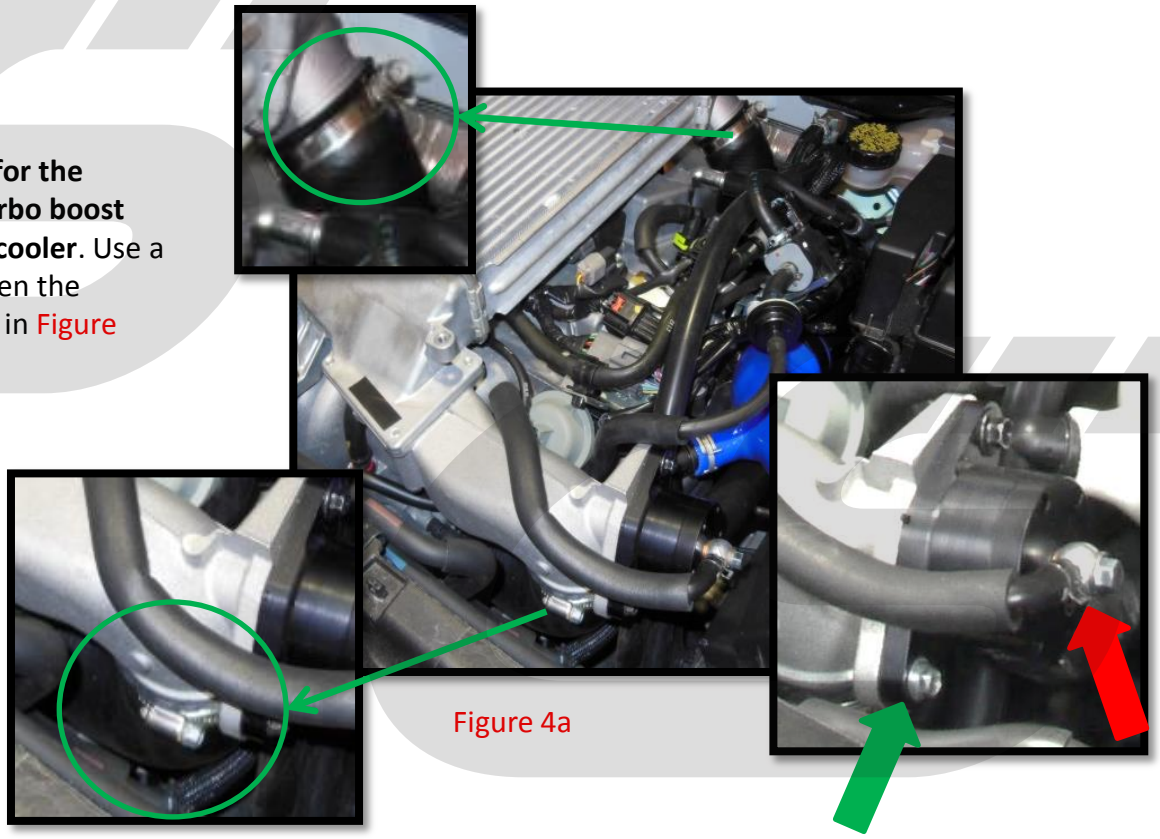

Figure 4a

b) **Detach the bypass valve (BPV) from the intake.** Remove the vacuum signal hose (red arrow). Leave the bypass valve attached to the intercooler pipe.

Figure 4c

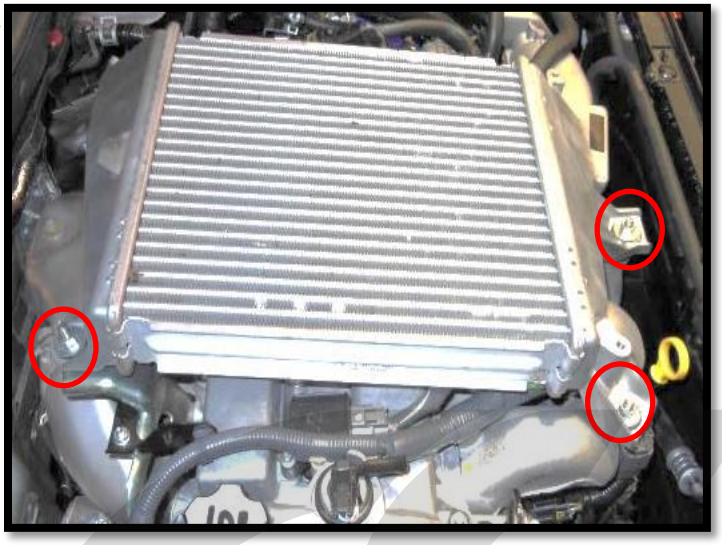

Figure 4b

e) **Remove the three (3) 12mm nuts fastening the intercooler to the top of the engine** and remove the intercooler from the vehicle by pulling upward (Figure 4b).

f) **Remove the outlet boost tube from the turbocharger.** Use a 10mm socket and ratchet or #2 Phillips screwdriver. Figure 4c.

5. Heat Shields Removal

a) **Remove thin silver firewall heat shield** shown with the green arrow in Figure 5a. There are three plastic clips that unscrew.

b) **Remove the six 8mm bolts** circled in red in Figure 5a, then remove the heat shield.

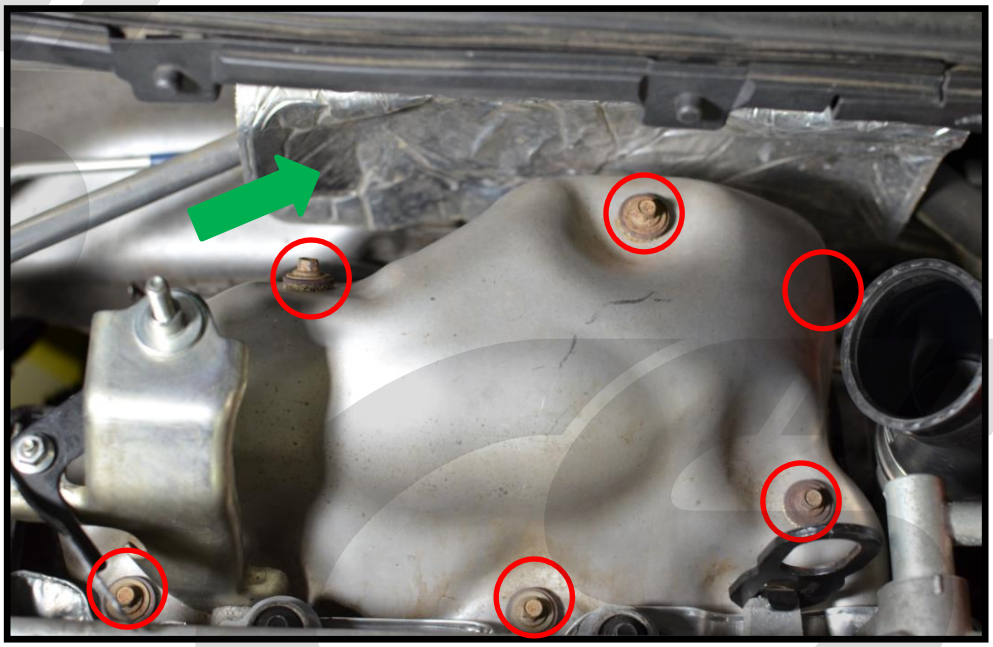

Figure 5a

b) **Remove the four 8mm bolts holding the lower heat shield** shown with the red arrow in Figure 5b and the red circles in Figure 5c.

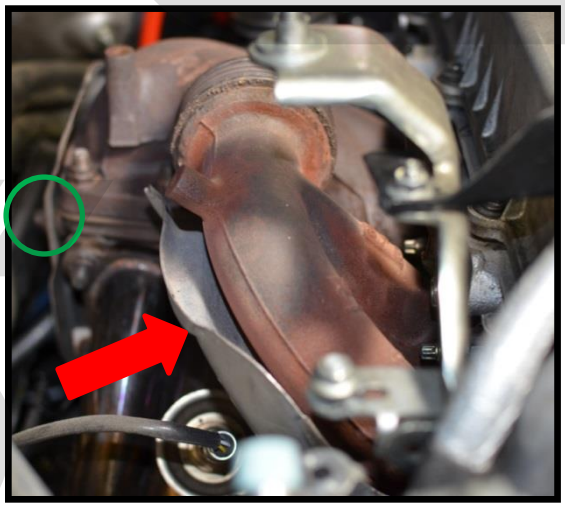

Figure 5b

c) **Remove the three 8mm bolt** circled in green in Figure 5b.

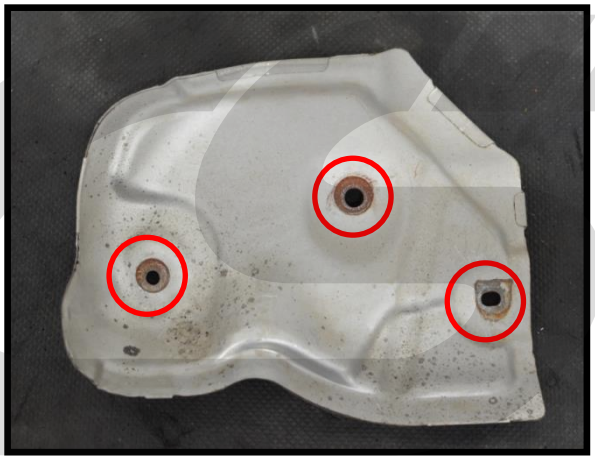

Figure 5c

The downpipe disassembly and removal of the lower turbo components has been broken down into two separate categories between the Mazdaspeed 3 and the Mazdaspeed 6.

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Mazdaspeed 6 Owners Continue to Page 13

MAZDASPEED 3 ONLY
6. Downpipe Disassembly

a) **Remove the oxygen sensor** using the oxygen sensor socket and ½" drive ratchet. Circled in green in Figure 6a.

CS Downpipe shown in Figures 6a -6e.

Oxygen Sensor Socket

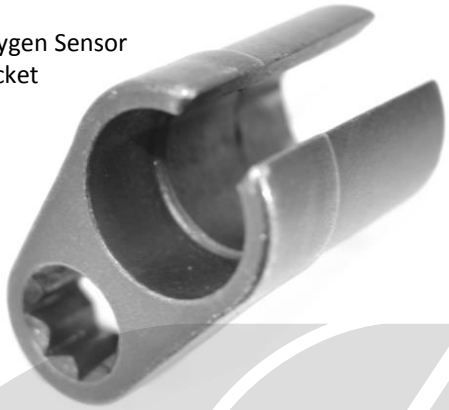

Figure 6a

b) **Remove the five 14mm nuts** circled in red and shown with the red arrow in Figure 6b.

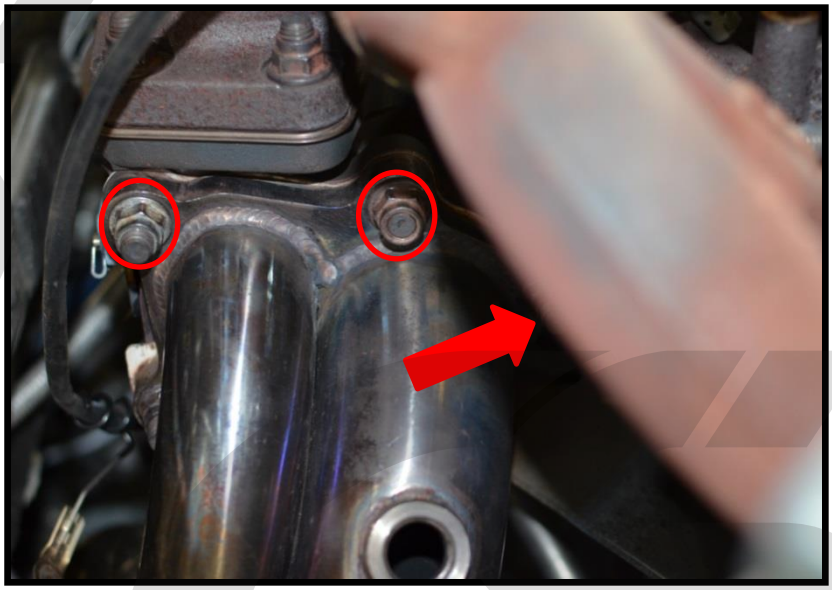

Figure 6b

MAZDASPEED 3 ONLY
6. Downpipe Disassembly (continued)

c) **Remove the second oxygen sensor** with an oxygen sensor socket and ½" ratchet**,** circled in red in Figure 6c.

d) **Remove the two 17mm (14mm for OEM) bolts between the downpipe and the catback exhaust (CBE),** circled in red in Figure 6d. (If applicable) Remove the 17mm (14mm for OEM) bolts between the race pipe and upper downpipe.

e) **Remove the exhaust hangers from the downpipe,** shown with the red arrows in Figure 6c.

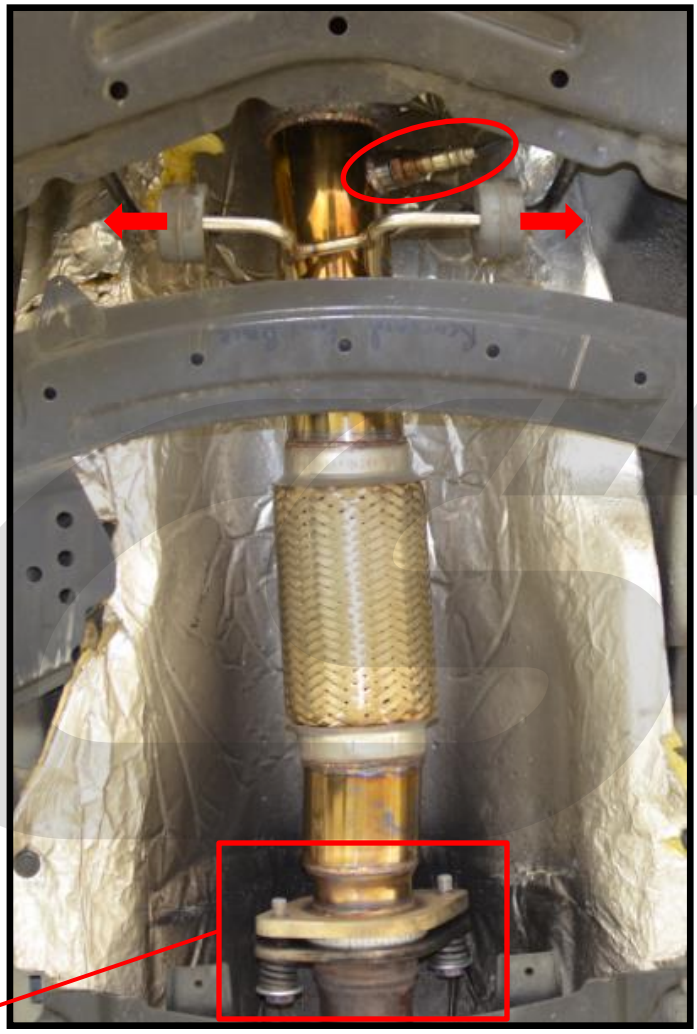

Figure 6c

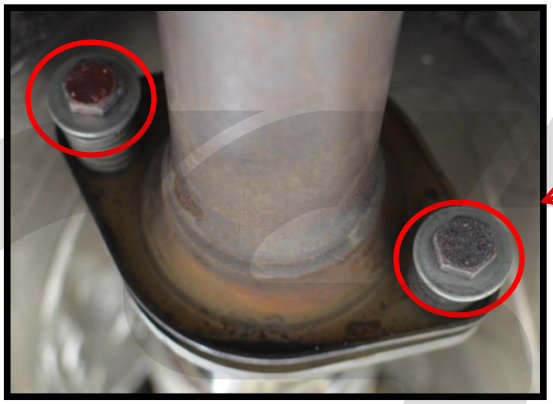

Figure 6d

f) **Remove the lower remaining two 14mm nuts** from the downpipe, circled in red in Figure 6e.

g) **Leave the downpipe loose in the engine bay.**

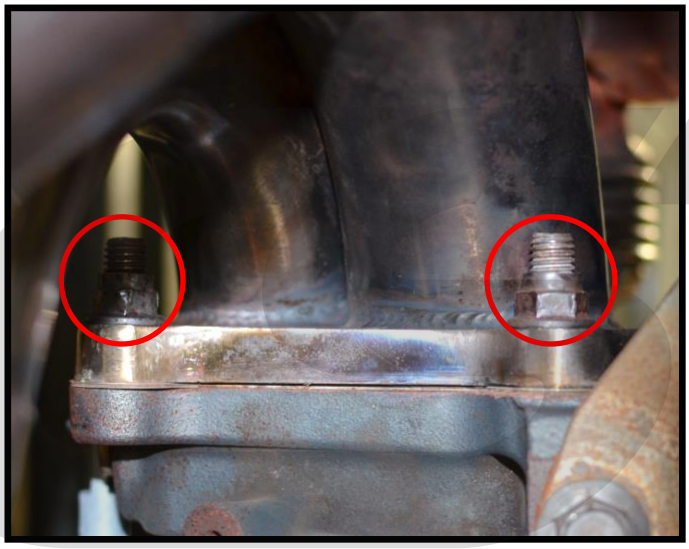

Figure 6e

MAZDASPEED 3 ONLY
7. Lower Turbo Components Removal

a) Drain approximately ½ gallon from the coolant system. Use a large flathead screwdriver to loosen the drain valve located on the lower driver's side of the radiator. Red circle in Figure 7a.

b) Remove the lower coolant line from the turbo, shown with the red circle in Figure 7b.

c) **Remove the four 10mm bolts holding the oil drain line,** shown from under the car with the green arrow & circles in Figure 7b.

Be careful to not loose or damage the oil drain gaskets if you plan to reuse them. They can be reused if in good condition.

The oil drain line M8 bolts in the turbo are shorter than the M8 bolts in the engine block. Note this for install.

Figure 7a

d) Remove the three 14mm bolts holding the turbo support bracket, circled in blue in Figure 7b

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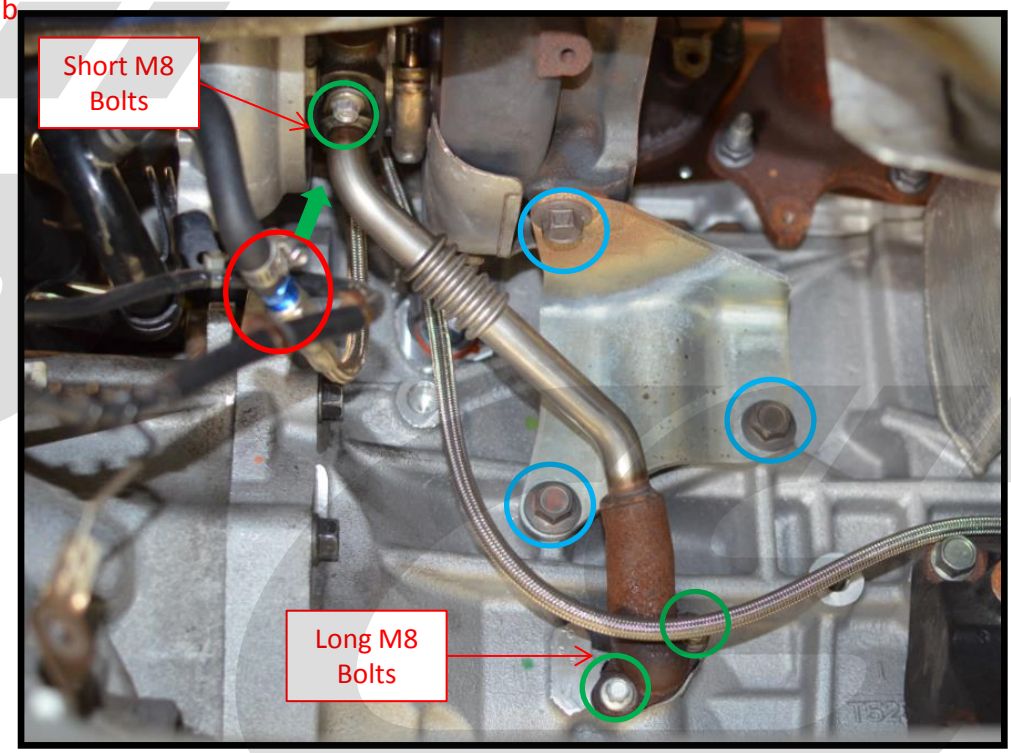


Figure 7b

MAZDASPEED 6 ONLY

6. Downpipe Disassembly

Figure 6a

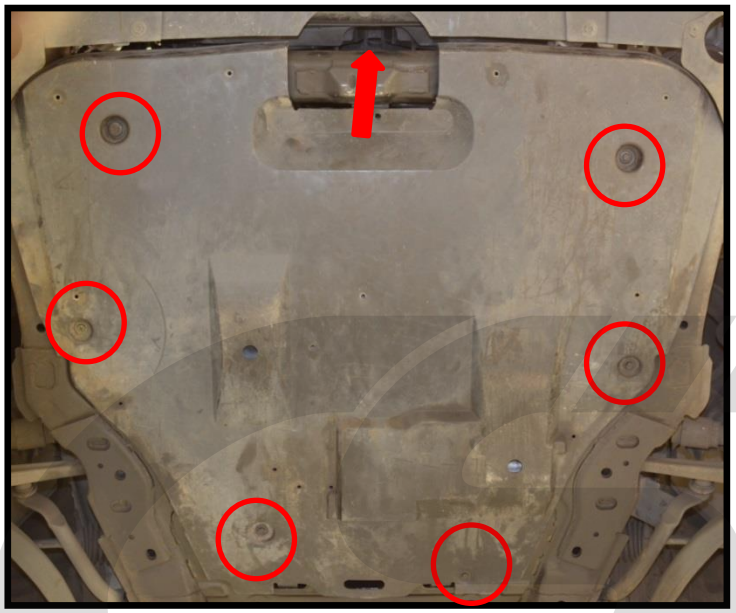


Figure 6b

a) Drain approximately ½ gallon from the coolant system. The drain is centered on the bottom of the radiator. Picture can be found in the Mazdaspeed 3 Only section with Red arrow in Figure 6a.

b) Remove the four 8mm bolts holding the lower inner fender. Red circles in Figure 6a.

c) Remove the six 10mm bolts holding the engine undertray. Red circles in Figure 6b. Remove undertray.

d) Remove the six Phillips push clip screws holding the inner fender access panel. Red circles in Figures 6c through 6e. Remove access panel.

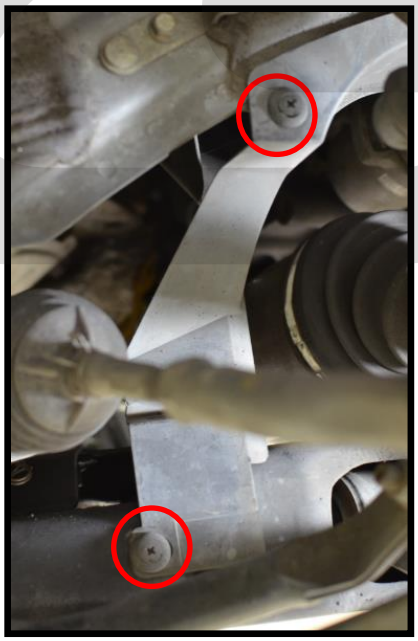


Figure 6c

Figure 6d

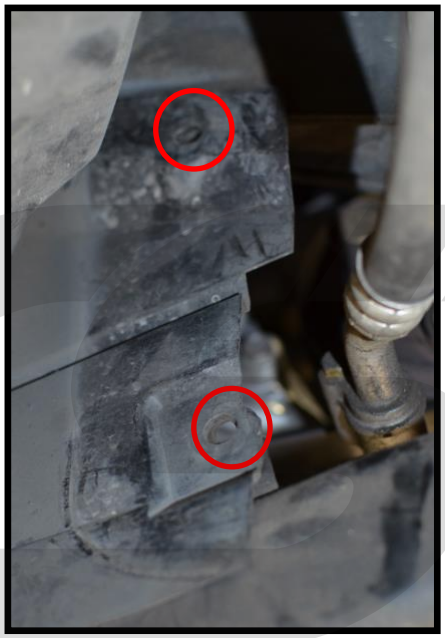


Figure 6e

MAZDASPEED 6 ONLY
6. Downpipe Disassembly (continued)

e) Remove the upper oxygen sensor using the oxygen sensor socket and ½" drive ratchet. Circled in green in Figure 6f.

Oxygen Sensor Socket

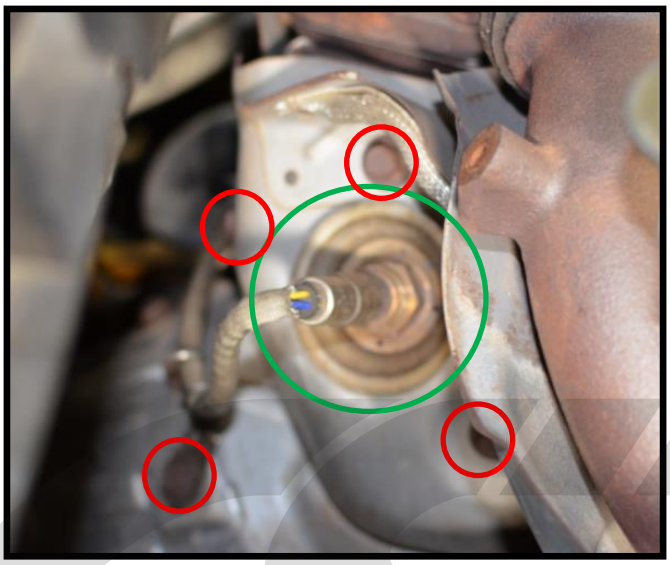


Figure 6f

f) Remove the four 10mm bolts circled in red in Figure 6f. Then, remove the heat shield covering the turbine studs.

g) Remove the five 14mm turbine stud nuts attaching the downpipe to the turbo. Red circles and arrows in Figure 6g.

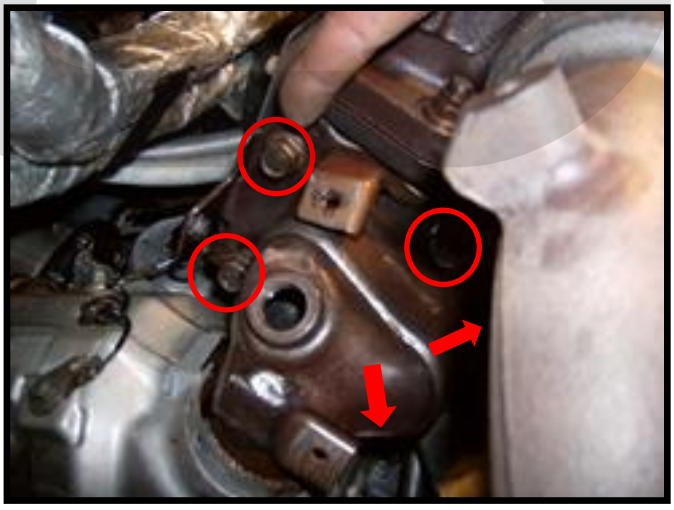


Figure 6g

h) Remove the lower oxygen sensor. Green circle in Figure 6h.

i) Remove the two 14mm bolts attaching the racepipe to the cat back exhaust. Red circles in Figure 6h.

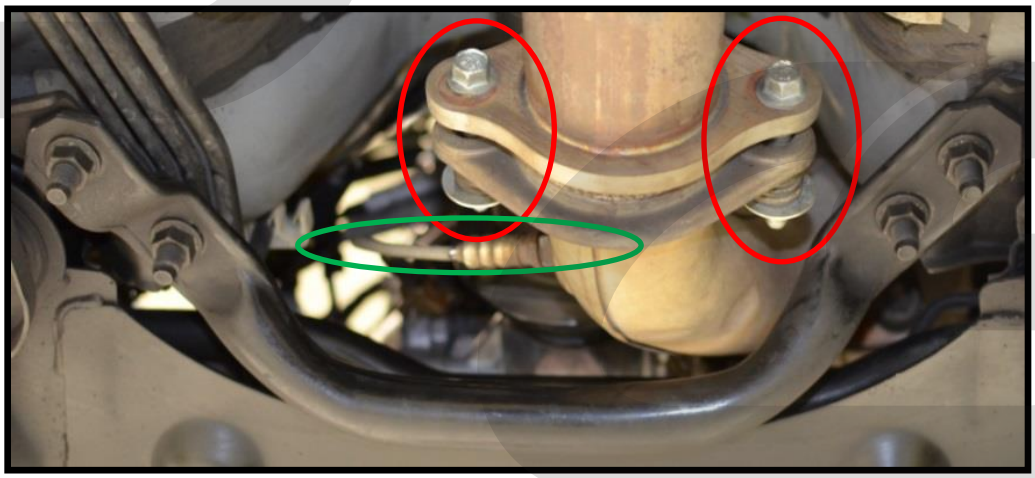


Figure 6h

MAZDASPEED 6 ONLY
6. Downpipe Disassembly (continued)

j) **Remove the two 14mm nuts** attaching the racepipe to the downpipe. Red circles in Figure 6i.

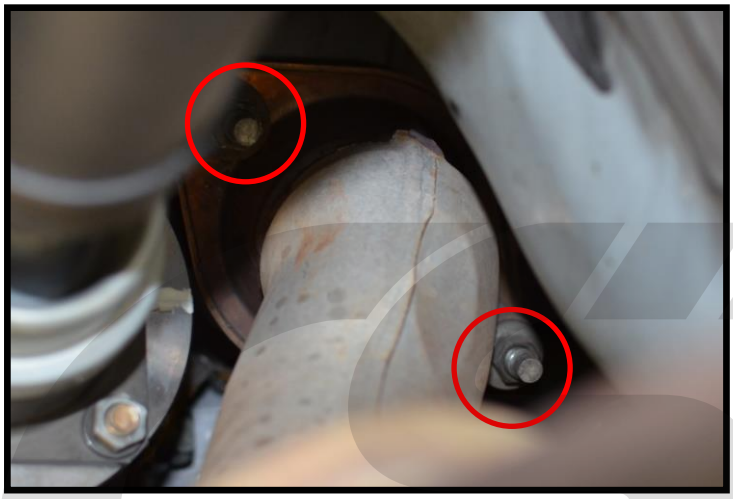


Figure 6i

k) **Remove the four 14mm bolts** holding the downpipe support bracket. Red circles in Figures 6j & 6k.

l) **Leave the downpipe loose in the engine bay for turbo removal.**

Figure 6j

Figure 6k

MAZDASPEED 6 ONLY
7. Lower Turbo Components Removal

a) Remove the lower coolant line from the turbo, shown with the red circle in Figure 7a.

c) Remove the four bolts holding the oil drain line, shown with the green arrow & circles in Figure 7a.

Be careful to not loose or damage the oil drain gaskets if you plan to reuse them. They can be reused if in good condition.

It may be easier to only remove the lower M8 bolts on the oil drain line and leave the drain line attached to the OEM turbo during removal.

d) Remove the three 14mm bolts holding the turbo support bracket, circled in blue in Figure 7a.

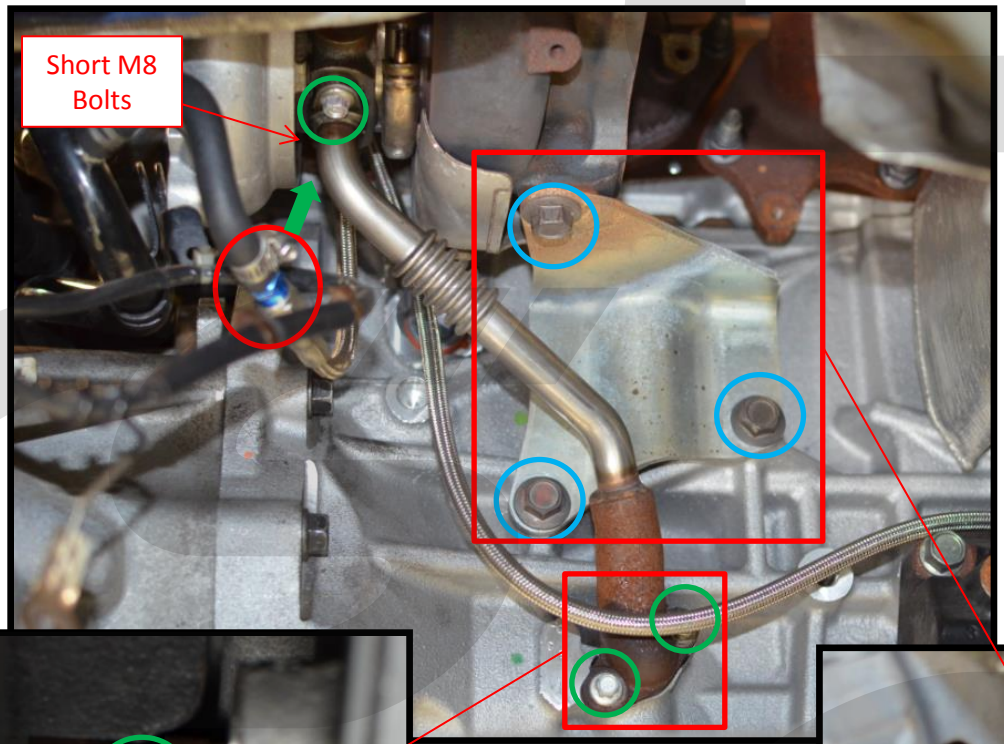
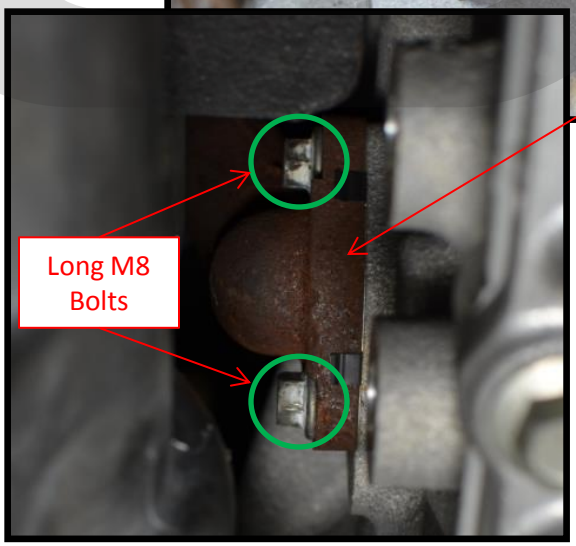
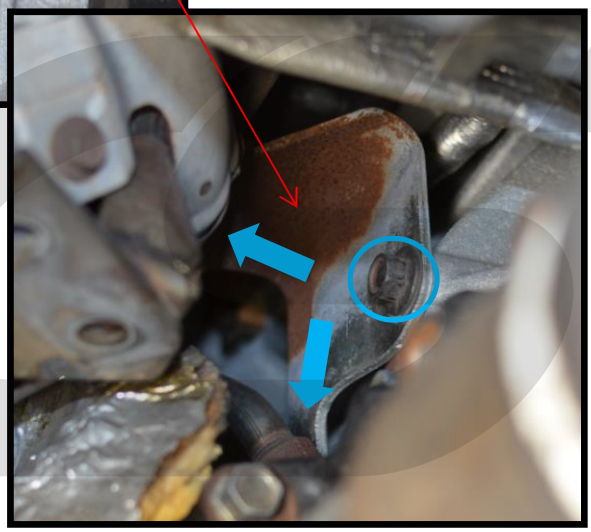


Figure 7a



The oil drain line M8 bolts in the turbo are shorter than the M8 bolts in the engine block. Note this for install.



Mazdaspeed 6 Owners Continue to Page 17

8. Clearing a Path for the Turbo

a) **Remove the three 10mm flange nuts** holding the brake booster heat shield. Red circles in Figure 8a.

b) **Disconnect the electrical connector from the OEM electronic boost control solenoid (EBCS).**

The ports on the OEM EBCS are fragile and can break off easily.

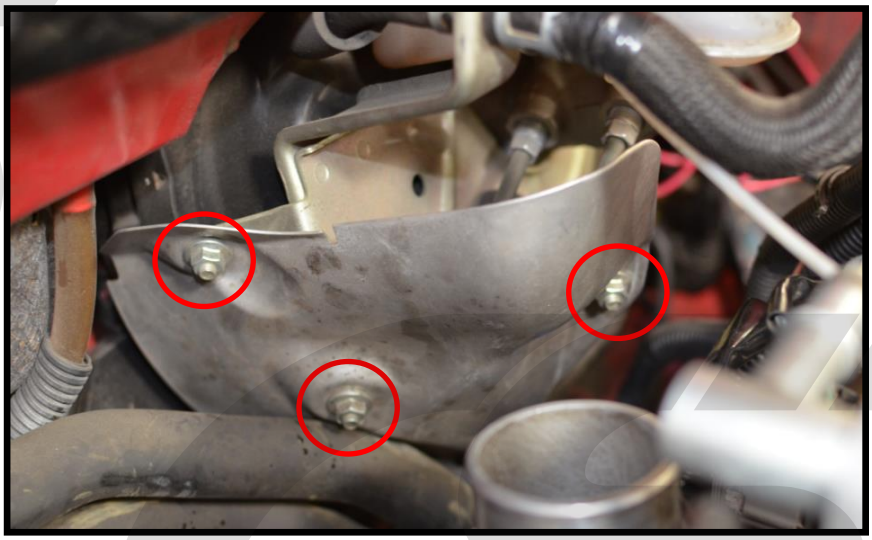
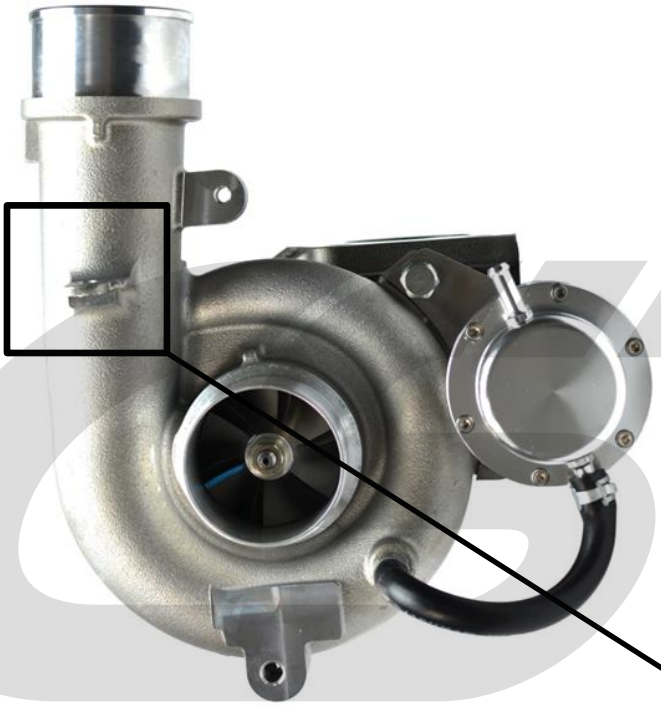


Figure 8a



The OEM EBCS is located on the compressor housing near the outlet.

c) **Remove the OEM EBCS.** Using a 10mm wrench, remove the flange nut. Shown with the red circle in Figure 8b.

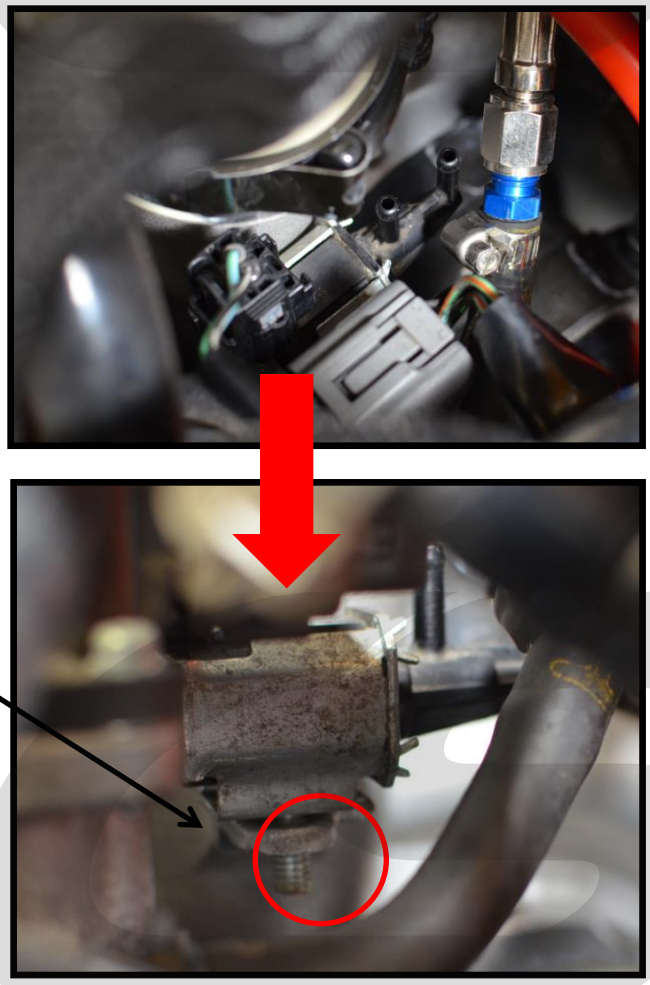


Figure 8b

8. Clearing a Path for the Turbo (continued)

d) **Disconnect the four electrical connectors** circled in red in Figure 8c.

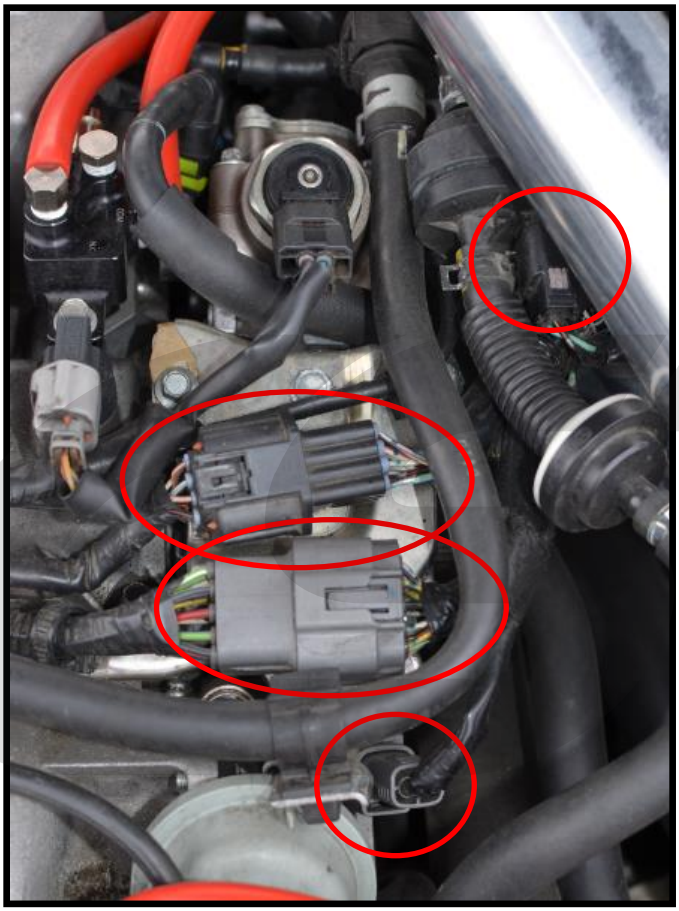


Figure 8c

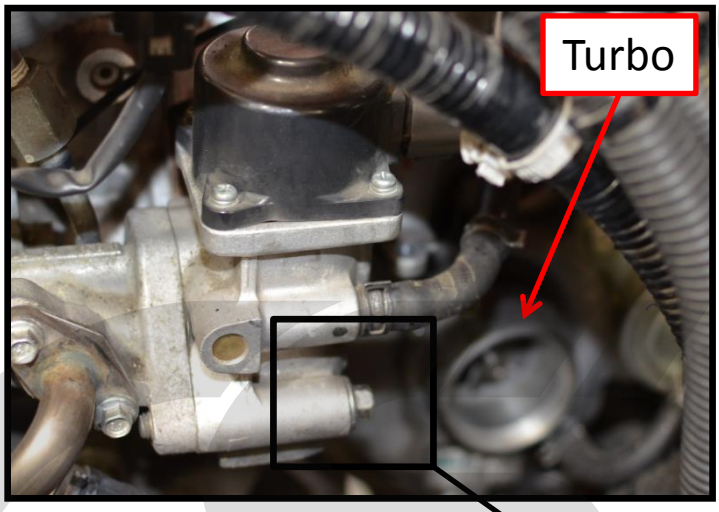


Figure 8d

e) **Remove the two 10mm flange bolts holding the EGR valve.** The mounted EGR valve is shown in Figure 8d and the bolt locations are shown in Figure 8e circled in red.

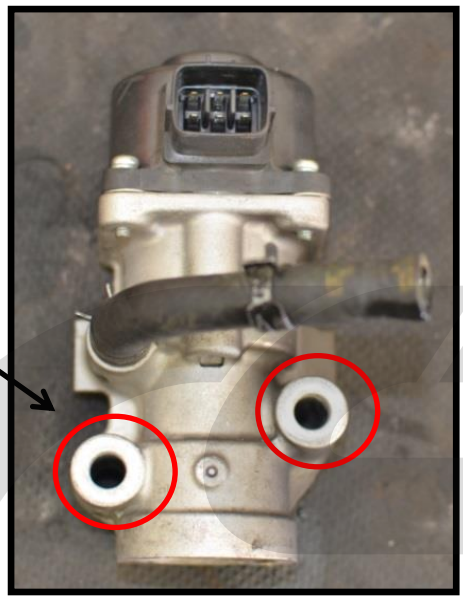


Figure 8e

Do not loose or damage the EGR Valve gasket, it can be reused.

8. Clearing a Path for the Turbo (continued)

f) **The result of clearing a path should look similar to Figure 8f below.** The turbo can be removed and installed through the opening circled in red.

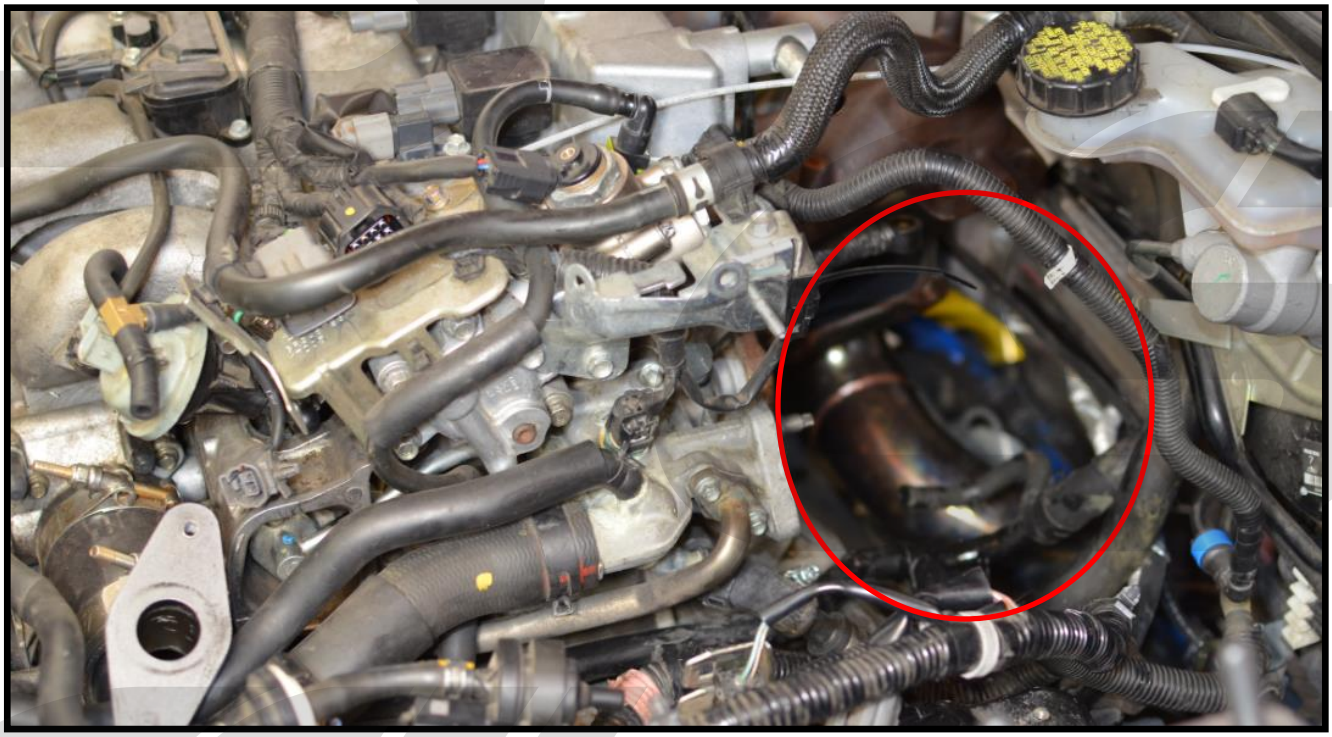


Figure 8f

9. OEM & BNR Turbo Removal

a) **Remove the 14mm oil feed banjo bolt,** circled in red in Figure 9a.

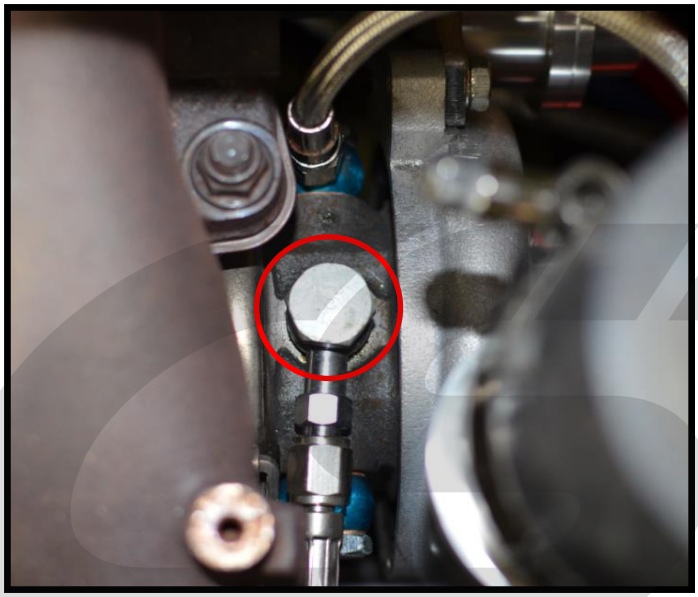


Figure 9a

9. OEM & BNR Turbo Removal

b) **Remove the 12mm flange nut connecting the coolant line brace to the turbo.** Red circle in Figure 9b.

Figure 9b

c) **Remove the four 14mm nuts holding the turbo to the exhaust manifold,** circled in red in Figure 9c.

Penetrating oil may be needed to break the turbine nuts loose.

Removing the turbine nuts will allow the turbo to fall if not held.

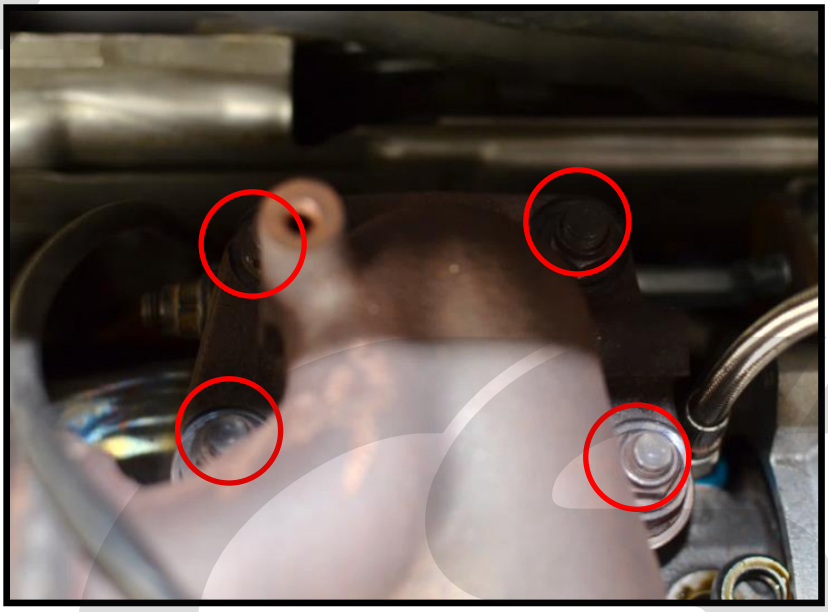


Figure 9c

d) **Remove the turbo from the vehicle through the opening shown in Figure 8f on Pg 18.**

10. CS Turbocharger Installation

a) **Remove the 17mm lower coolant hard line from the OEM turbocharger,** shown with the red circle in Figure 10a. Install this line on the CS turbocharger with the two new provided M14 copper crush washers. Torque to 20 ft-lb.

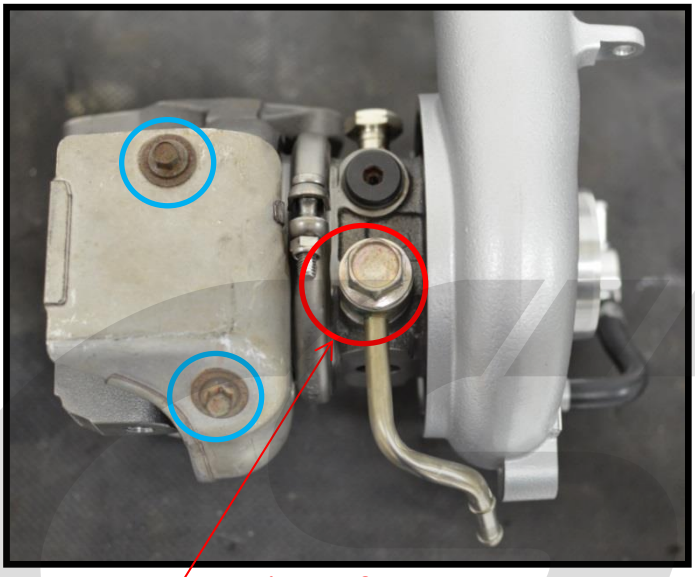


Figure 10a

M14 Copper Crush Washer

b) **Remove the two 8mm bolts holding the turbine heat shield,** circled in blue in Figure 10a. Install the heat shield on the CS turbocharger. Torque to 10 ft-lbs.

M14 Copper Crush Washer

c) **Install the provided upper coolant line** with the OEM 17mm banjo bolt and new provided copper crush washers and Torque to 20 ft-lb. Shown with the red circle in Figure 10b. Install the M6 10mm flange bolt provided. Shown with the green circle in Figure 10b. Also shown on next page with a front view of the turbo.

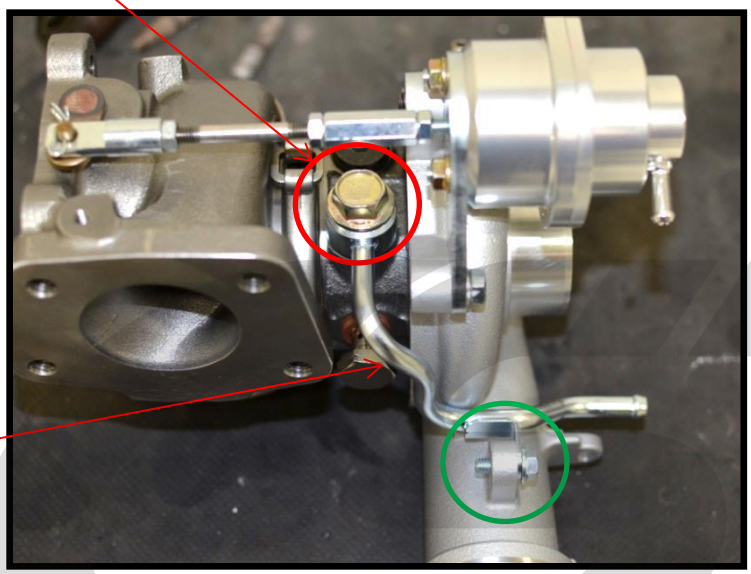


Figure 10b

Top Coolant Line

10. CS Turbocharger Installation Continued…

M6x1.0x16mm
Flange Bolt

M8x1.25x12mm
Flange Bolt

e) Apply a small amount of anti-seize coating to the course threads of the provided studs as shown in Figure 10c.

f) Install all nine studs into the turbo housing hand tight as shown in Figure 10d. Then install the exhaust manifold gasket.

d) Boost Control Setup. If you are running an aftermarket Electronic Boost Control Solenoid (EBCS): Read the instructions provided with the EBCS carefully. There is a restrictor pill located in the vacuum line that may need to be removed. CorkSport recommends running a bleed setup similar to OEM. All parts have been optimized for OEM boost control setup.

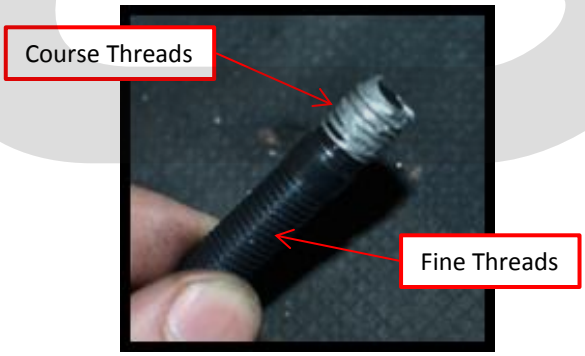


Figure 10c

Figure 10d

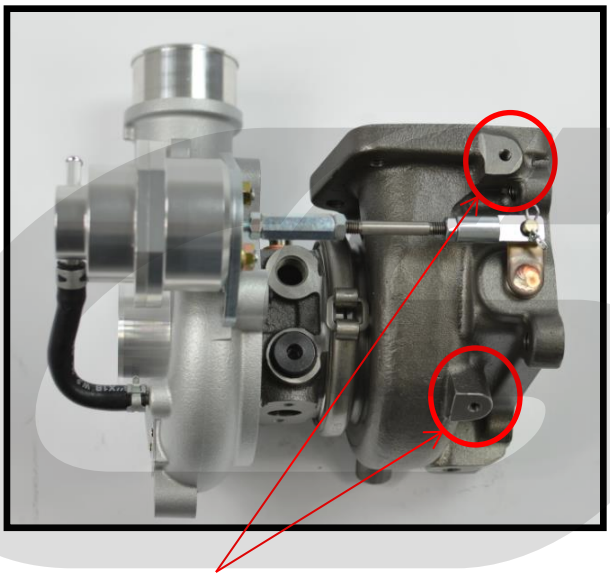
10. CS Turbocharger Installation Continued…

g) **Install the CS turbocharger through the opening** shown in Figure 8f on Pg. 18.

h) **Tighten the four studs shown in Figure 9c to 45-50 ft-lbs .**

i) **Once the CS turbo is installed in the vehicle,** install the provided heat shield.

j) **Use the provided cap screws** as shown in Figure 10e.



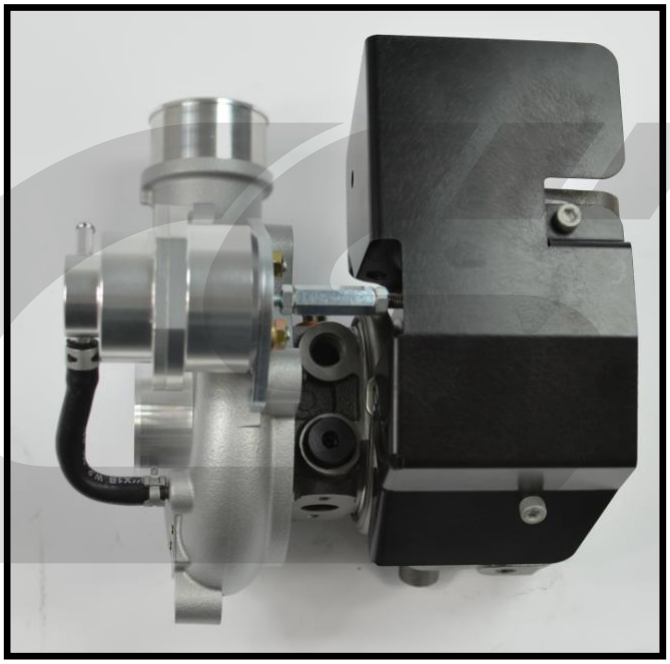
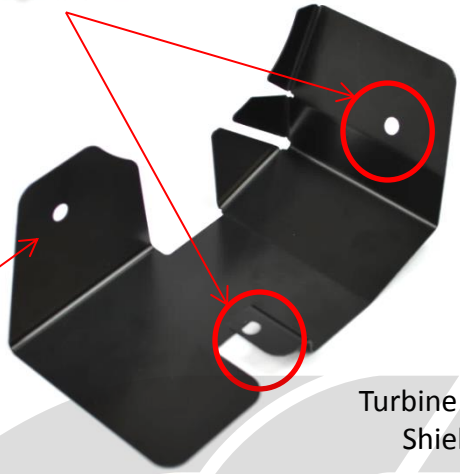


Figure 10e

M6x1.0x10mm
Cap Screws



Exhaust
Manifold
Hole

Turbine Heat
Shield

10. CS Turbocharger Installation Continued…

Notes before moving on:

- The CorkSport turbocharger is lubricated before the balancing process, but we recommend pouring a small amount of new engine oil or assembly lube into the oil feed port before operating the turbo. This will provide lubrication before initial oil pressure builds. The oil feed port is shown in Figure 10f with the red circle. Torque to 15 ft-lbs.

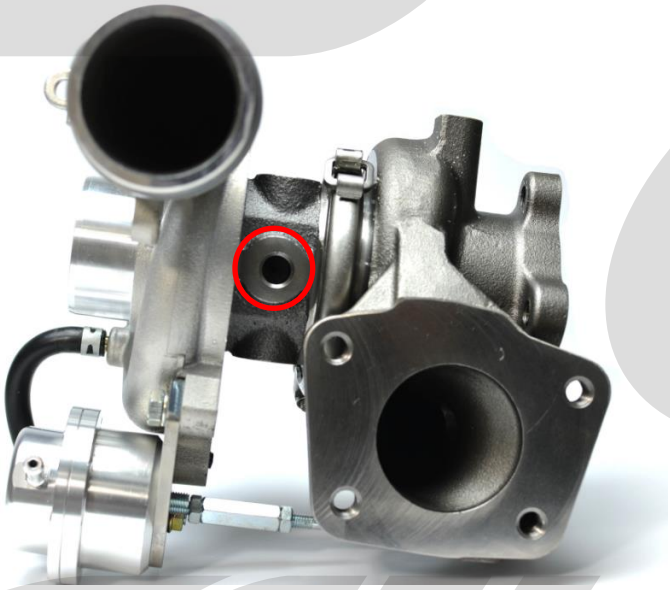


Figure 10f

Required:
M12x1.25x25mm
Oil Feed Banjo Bolt

M12 Copper
Crush Washer

11. Torque Specs, Pre-Running & Tuning Recommendations

- Follow the instructions in reverse order to complete the vehicle assembly. Refer to torque specs below.
  - Install wiring and EGR removed in Section 8: Clearing a Path for the Turbo
  - Install the lower Turbo Components removed in Section 7
  - Install the Downpipe removed in Section 6
  - Install the Heat shields removed in Section 5
  - Install the Intercooler removed in Section 4
  - Install the OEM turbo inlet pipe removed in Section 3
  - Install the Battery and ECU removed in Section 2
  - Install the intake and filter removed in Section 1

Torque Specs

• 8mm Nut/Bolt	8-10 ft-lbs	• Oil Banjo Bolt	15 ft-lbs
• 10mm Nut/Bolt	15-17 ft-lbs	• Coolant Banjo Bolt	20 ft-lbs
• 12mm Nut/Bolt	19-21 ft-lbs	• 14mm Turbine Nuts	45-50 ft-lbs
• 14mm Nut/Bolt	30-32 ft-lbs		

11. Torque Specs, Pre-Running & Tuning Recommendations Continued

- A re-tune will be required to safely operate the CorkSport turbocharger. The wastegate duty cycles and ignition timing maps may need to be modified. We recommend contacting a professional tuner.

- Do not use an aftermarket oil feed restrictor bolt, you must use the provided oil feed banjo bolt.
  - This banjo bolt has been designed to allow the correct amount of oil to the turbo and is not the OEM thread pitch.

This completes the installation of your CorkSport DISI MZR Performance Drop-In Turbocharger. Enjoy the new found power and let us know what you think online at CorkSport.com

What's Next:

CORKSPORT Mazdaspeed Boost Control Solenoid

Take control of your boost and performance with the CorkSport Mazdaspeed Electronic Boost Control Solenoid (EBCS). Utilizing the latest technology in solenoid controlled air valves, the CorkSport EBCS outflows and out responds the competition. It builds boost faster and minimizes boost spikes and creep.
The CorkSport replacement EBCS features a 3-port design that has the flexibility to control all boost control setups, such as bleed and interrupt for internal wastegates and interrupt or push-pull for external wastegates.

CORKSPORT 3" Power Series intake System

Dramatically reduce intake restrictions and get an impressive improvement in power throughout the entire RPM range with the CorkSport Mazdaspeed 3 Power Series 3" Intake System.
The Power Series 3" Intake System is fabricated with a high polished 3 inch turbo inlet pipe and a true 3" inside diameter MAF housing. The velocity stack design smooth's air flow for maximum performance. If you plan on upgrading or have already upgraded your turbo this upgrade is a must to keep your MAF sensor functioning within its calibrated range.